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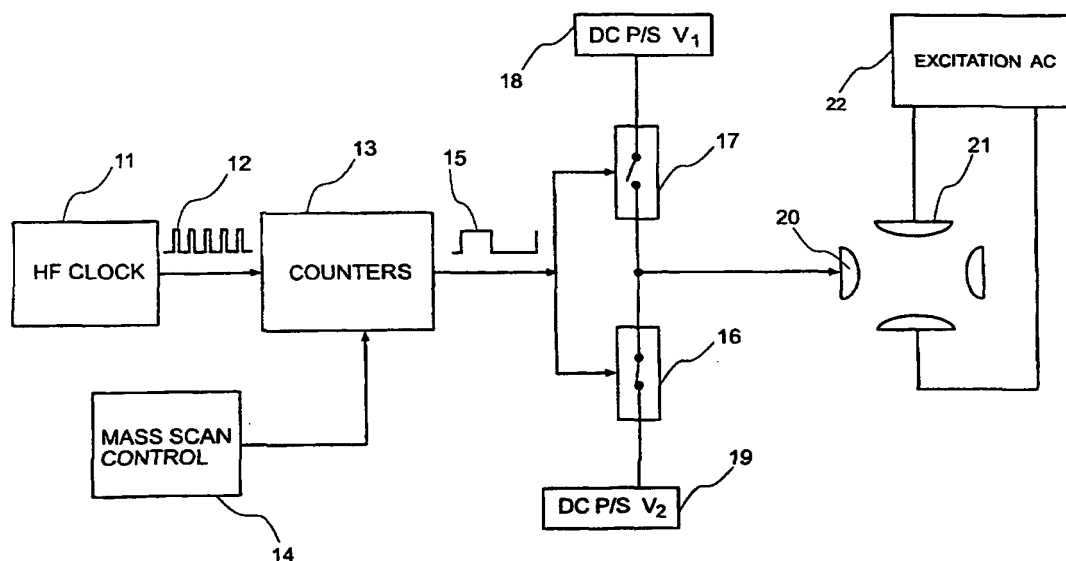
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(54) Title: **METHODS AND APPARATUS FOR DRIVING A QUADRUPOLE ION TRAP DEVICE**



(57) Abstract: A digital drive apparatus (Fig. 3) for quadrupole device such as a quadrupole ion trap has a digital signal generator (11, 13, 14; 24, 25, 26) and a switching arrangement (16, 17) which alternately switches between high and low voltage levels ( $V_1$ ,  $V_2$ ) to generate a rectangular wave drive voltage. A dipole excitation voltage is also supplied to the quadrupole device to excite resonant oscillatory motion of ions.

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